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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/710,539	11/09/2000	Benjamin N. Eldridge	276440-3	5812

7590 02/26/2002

Brian M Berliner  
O'Melveny & Myers LLP  
400 South Hope Street  
Los Angeles, CA 90071-2899

EXAMINER

NGUYEN, SON V

ART UNIT

PAPER NUMBER

2839

DATE MAILED: 02/26/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/710,539

Applicant(s)

Eldridge Etal.

Examiner

Son Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on Jan 9, 2002
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 35 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-70 is/are pending in the application.
- 4a) Of the above, claim(s) 22-24, 28-37, 42-47, and 65-70 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21, 25-27, 38-41, and 48-64 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirements.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some\* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). \_\_\_\_\_
- 18) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other: \_\_\_\_\_

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## DETAILED ACTION

### *Election/Restriction*

1. Claims 22-24, 28-37, 42-47 and 65-70 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 6.

### *Claim Rejections - 35 USC § 112*

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-21, 25-27, 38-41 and 48-64 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
4. Claim 1, lines 8 and 12-13, it is unclear whether applicant intended by "first edge" and "second edge" of a beam and "said neutral axis running through said first edge, said second edge, and a centroid." Applicant should clarify and define the first and second edges of the beam according to the neutral axis running through said first edge, said second edge, and a centroid. An attachment 1 shows different first edges, second edges and distance therebetween could be defined as  $e'_1$ ,  $e''_1$ ,  $e'''_1$ , and  $e'_2$ ,  $e''_2$ ,  $e'''_2$ , and  $d_1$ ,  $d_2$ ,  $d_3$ .

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*Claim Rejections - 35 USC § 102*

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-2, 9, 13, 18-20, 25, 38-41, 48 and 56-59 are rejected under 35 U.S.C. 102(b) as being anticipated by Grabbe et al. (US 5,152,695).

Grabbe et al. discloses a microelectronic spring structure [10, figures 1 and 3-4] comprising:

- a base [20] formed of a resilient metal material and electrically mounted on a conductive layer formed on a substrate [14];
- a cantilever beam [22, figure 3-4] integrally extending from a first end of the beam [38] and having a step portion at the first end;
- a tip [36] positioned at a second end of the beam;
- the beam has a substantially uniform thickness [figure 3];
- a distance extends from a neutral axis at a centroid of a cross section to a portion of an supported span is greater than one-half the thickness of the beam [see attachment 2], wherein the neutral axis running through a first edge, a second edge and the centroid of a cross section of the beam;

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- an area of moment of inertia at a nipple [26] substantially greater than a width multiplied by the cube of a thickness and divided by twelve;
- the beam is deflected toward the substrate of at least 10% of an original unloaded height;
- the beam is contoured in both lengthwise and widthwise direction [figure 3]; and
- the beam is free of any overlapping portion and has a generally triangular shape viewed in a direction normal to the substrate.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 3-8, 10-12, 14-17, 26-27, 49-55 and 60-64 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grabbe et al.

Grabbe et al. discloses the instant claimed invention except for the beam and the conductive layer comprises various dimensions, materials, springs rates and deflection ranges.

It would have been an obvious matter of the design choice to have the beam and the conductive layer comprises various dimensions, materials, springs rates and deflection ranges, since such a modification would have involved a mere change in the shape and material of a

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component. A change in shape and material is generally recognize as being within the level of ordinary skill in the art. In re Dailey, 357 F.2d 669 USPQ 47 (CCPA 1966) and In re Leshin, 125 USPQ 416.

9. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Grabbe et al. and R. J. Kinnaid et al. (US 3,173,737).

Grabbe et al. discloses the instant claimed invention except for the cross section is generally V-shaped.

Grabbe et al. discloses a contact [figure 4] having resilient beam [84] and a generally V-shaped cross-section taken across element [90] in a direction perpendicular to a length of the beam.

It would have been obvious to one having ordinary skill in the art at the time invention was made to modify the beam of Grabbe et al. to provide the V-shaped cross-section as taught by R. J. Kinnaid et al. for the purpose of providing more stiffness of the beam.

### ***Response to Arguments***

10. Applicant's arguments filed 1/9/02 have been fully considered but they are not persuasive.

Applicant argues that:

1) Grabbe et al. fails to discloses a spring contact having a beam "wherein said beam has a length running ... and a centroid of said every cross section" in page 6, lines 2-9. Examiner respectfully disagrees. Grabbe et al. discloses every element of claim 1 (see the rejection

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described above and the analysis in the attachment). Grabbe et al. also discloses the newly claimed a distance extending from a neutral axis to a portion of an unsupported span of a beam is greater than one-half of a thickness of the beam (see attachment 2), as claimed.

2) Grabbe et al. fails to disclose or suggest a spring contact having a contoured (non flat) cross-sectional shape from edge-to-edge of the beam across a substantial part of its span.

Examiner agrees. However, applicant has not claimed, nor has examiner considered.

3) Babuka et al. fails to discloses a beam has V-shaped cross section taken across a width of the beam (newly defined in claim 1). Examiner agrees. R. J. Kinnaid et al. shows a contact [figure 4] having resilient beam [84] and a generally V-shaped cross-section taken across element [90] in a direction perpendicular to a length of the beam.

### *Conclusion*

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Seymour (US 4,772,228) shows an electrical contact [figures 2-3] having a contour V-shaped cross section.

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after

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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Son Nguyen whose telephone number is (703) 308-8745.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus, can be reach on (703) 308-3119. The fax phone number for this Group is (703) 308-7722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-1782.

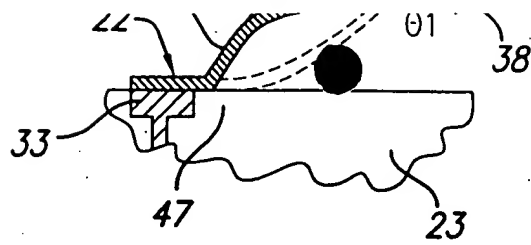
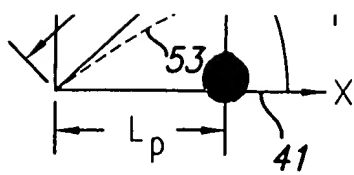
Son Nguyen 

February 17, 2002

  
**BRIAN SIRCUS**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2800**



000046-02507266



$e_1$  = first edge  
 $e_2$  = second edge  
 $d_i$  = distance between edges

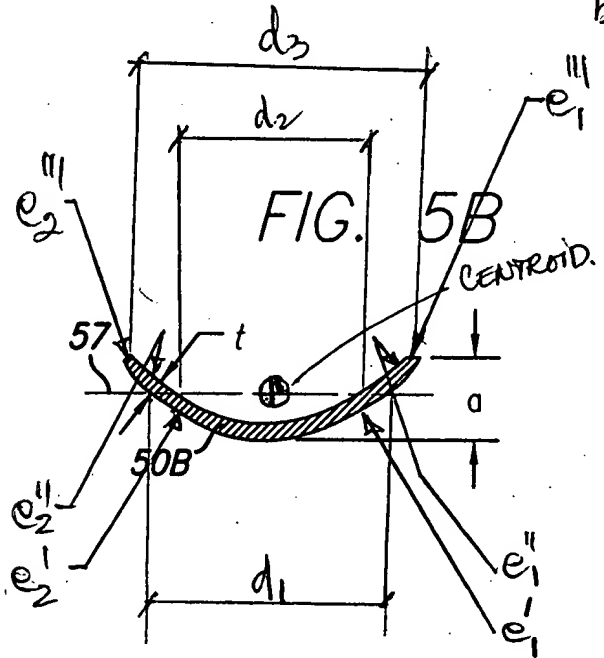
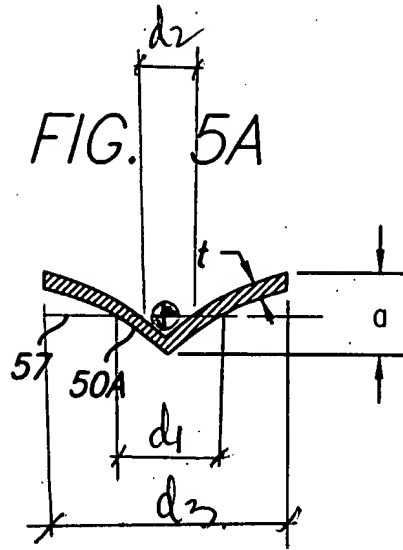


FIG. 5C

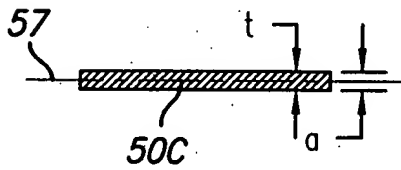
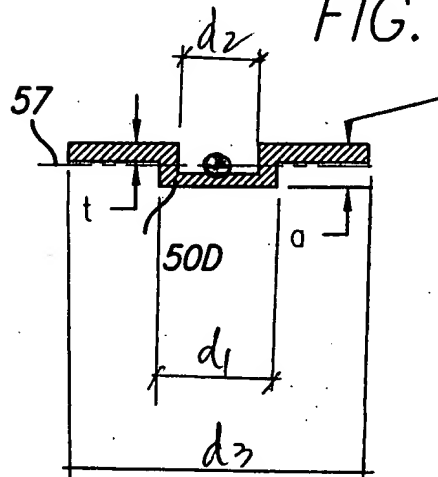
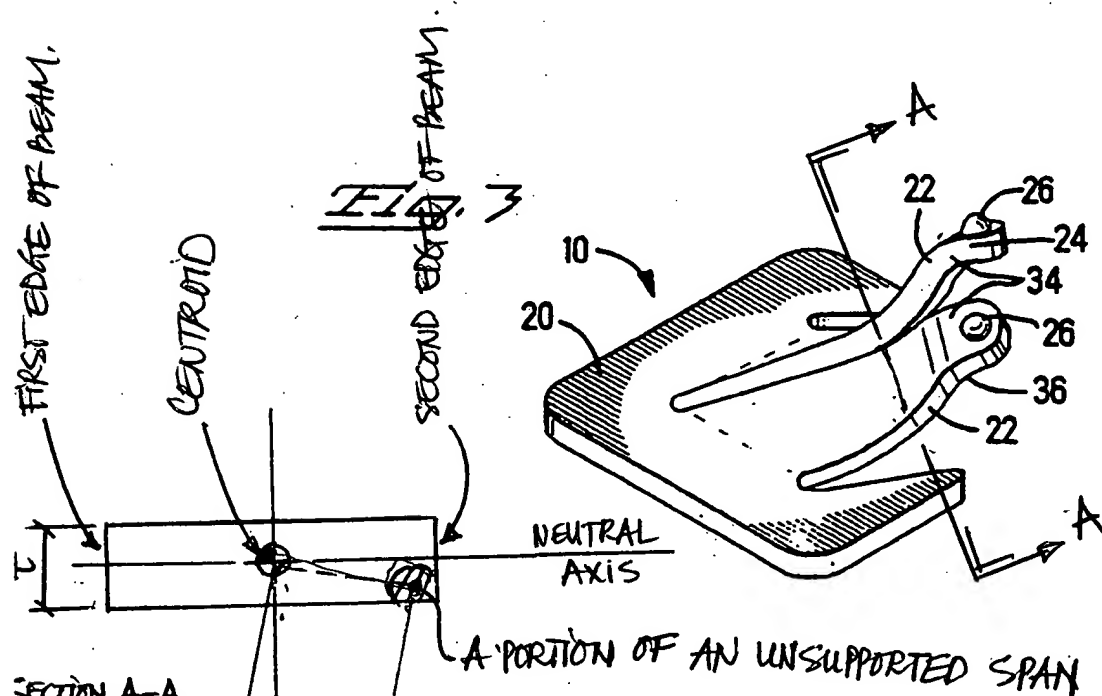
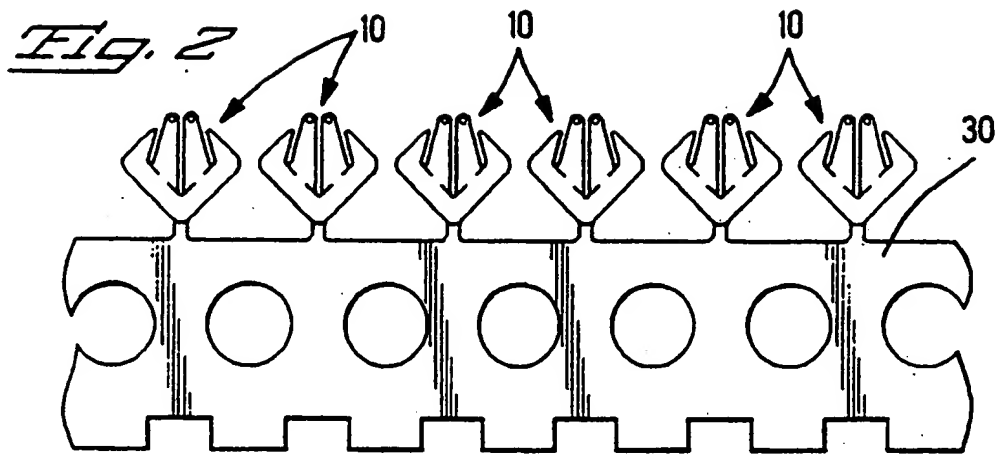


FIG. 5D

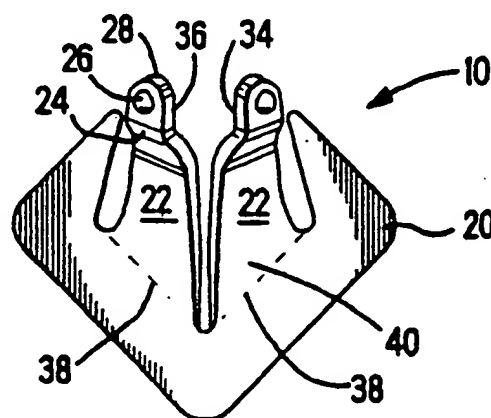


ATTACHMENT 1



$t$  = UNIFORM THICKNESS.  
 $d$  = DISTANCE EXTENDS FROM  
 A NEUTRAL AXIS @ CENTROID  
 TO A PORTION OF AN  
 UNSUPPORTED *FIG. 4*  
 SPAN.

$$d > \frac{1}{2} t$$



ATTACHMENT 2